

The Human Factor in Industry

National Institute of Industrial Psychology
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The Human Factor in Industry

THE MODERN NEED FOR INDUSTRIAL PSYCHOLOGY

GREAT BRITAIN is faced with the problem of regaining her former position in the export markets of the world and of holding her own with other nations in the fierce competition of modern industry. "Rationalisation" is fast acquiring a magical reputation as a panacea for such difficulties. But Rationalisation alone is not enough, if it fails to satisfy the demands of the human factor, which is the soul of every industrial organisation.

The desire of employers for reduction of costs of production, and that of the workers for improved conditions of labour and adequate remuneration are by no means incompatible. Both objects can be achieved by the close co-operation of employer and employed in marshalling all the human, technical and financial forces of an industry, so as to secure the maximum efficiency and the minimum waste of time, effort and material.

Moreover, each worker must have the satisfaction of doing the work for which he is best fitted by his aptitudes and abilities ; and he must be enabled to do that work in an atmosphere of understanding and goodwill, under conditions which eliminate wasted effort and needless irritation, worry, boredom and fatigue.

The workers of a century ago regarded Science with suspicion and antagonism because they saw it introducing machines which improved and accelerated the processes of production at the expense (initially, at least) of their means of livelihood. The workers of to-day, both as individuals and as represented by their Trades Unions, are welcoming Science in the form of Industrial

Psychology for the help it gives in investigating and removing the obstacles which stand in the way of industrial efficiency, progress and contentment.

The National Institute of Industrial Psychology submits for your consideration the following facts :

[1] The Institute is a Scientific Association (founded in 1921, not for profit).

[2] The Institute's practical work is centred in the actual conditions of industrial and office life. Its staff carry out their work in the factories in which their investigations are being conducted. There is therefore no danger of advice being given by scientific experts who are ignorant of practical conditions.

[3] In eighty-one different industries EMPLOYERS have shown their confidence in the Institute's work by asking for the services of its staff in their factories, etc. These industries include agriculture and horticulture, mining and quarrying, the manufacture of raw materials and finished goods in wide variety, building and construction trades, transport and communications, distributing trades, those giving personal services, such as hotels, hospitals and laundries, and those giving financial services, such as banks. Employers have stated repeatedly that costs of production, wastage of material, time and energy have been reduced, output has increased and better industrial relations have been established.

[4] WORKERS have expressed repeatedly the opinion that owing to the Institute's investigations their working conditions have improved, and strain, fatigue and irritation have been reduced. The happiest relations have invariably existed between the workers and the investigators.

Trade Unions have given both moral and financial support to the Institute and have used its services.

[5] The Carnegie Trustees have shown their belief in the work of the Institute by making a grant of £14,750 for research. The Laura Spelman Rockefeller Trustees have also made a grant of £14,000 to be used so far as possible for the same purpose.

[6] Methods have been devised to reveal and to estimate the natural aptitudes and abilities of young people at the outset of their careers. The Institute is thus able to offer the service of *Vocational Guidance*, by means of which the square peg may be fitted into the square hole and the country may be saved the enormous annual wastage caused by failure to fit people into the occupations for which they are suited by temperament, ability and inclination. This service must appeal equally to the business man and to the philanthropist.

THE APPEAL

The Institute is undertaking work of National importance. It has already carried through the preliminary stages of this work with such results that it is being asked, and is indeed expected, to extend the work and to enlarge its scope. But financial support on a substantial scale is needed to enable the Institute to build an edifice worthy of these carefully and conscientiously laid foundations.

In the first place, the *scientific basis* of the Institute's work must be maintained by research. The Institute now possesses well-equipped laboratories and research rooms, and is in a unique position of close contact with vocational and other industrial problems.

Secondly, as the Institute's specialised knowledge accumulates, the demand for the dissemination of the knowledge acquired by practical experience and research becomes more insistent. In other words, the Institute must become an *educational centre* as well as an institution for pure research and practical work. Endowment is needed for the training of students and managers, teachers and welfare workers, as well as for the supply of thoroughly prepared

and carefully selected investigators demanded by the growing needs of the work. The Institute is already co-operating with such bodies as the London School of Economics and its Department of Business Administration, Research and Training, by giving courses of lectures and practical work on Applied Psychology, Industrial Psychology and special problems relating to selection of personnel, industrial relations, etc.

The surest guarantee of the continued vitality and progress of a movement lies in the fact that a large and representative body of intelligent people have identified themselves with it. The National Institute of Industrial Psychology needs not only donations of money which will enable it to enlarge its scope and to increase its sphere of service, but also the definite moral support of a whole community of "practical idealists" who *by becoming Members of the Institute* pledge themselves to maintain a keen and critical interest in its affairs.

The Council of the Institute is confident that a careful consideration of the above facts will enlist a widespread and generous response to this appeal for support of the work of an institution which stands for social and industrial progress by the application of scientific knowledge to the human factor in industry.

In this country we are, as a rule, readier to give money for charity than for remedying the causes which produce appeals for charity. But the *prevention* of the "disorders" of Industry is far more important than their *cure*.

WILL YOU HELP THIS MOVEMENT
BY BECOMING A MEMBER OF
THE INSTITUTE?

Some Results obtained by the Institute

INDICATIVE OF FIELDS FOR FURTHER RESEARCH

1...Tests for the Selection of the most suitable Workers for different kinds of Work.

Mental and physical tests of a simple and practical nature can be devised for the selection of workers in any trade. This scientific method ensures from the outset that only the *right* staff are engaged. The tests are easy to apply; the gain is great. Output, *esprit de corps* and happiness are all increased if the square pegs are fitted into the square holes.

Spinning Mill . Percentage of discharges reduced from 30 to 13

Department Store . only one misfit in five years

2...Methods of Training.

Traditional methods of training can often be greatly improved, and new workers can be prevented from forming faulty habits of work which lower output. New methods have given the following results in comparison with the old :

Margarine Process . 37% saving of time

Chocolate Packing . 21% increase in output

3...Interest in Work and the Reduction of Monotony.

Industrial processes are getting ever more mechanical and monotonous; and monotony sometimes has the

effect of dulling the brains of the workers and lessening their capacity. Repetition work cannot be eliminated from industry, but methods adopted to combat the feeling of boredom have been amply repaid :

Sweet Packing . . . 14% increase in output

Currency Note Sorting . Working day shortened by 30 minutes with no loss of output

Fruit Sorting . . . output doubled

4...Movements of the Worker.

Good methods and rhythm in work save waste of effort and increase output. Here are some of the results of the application of motion study :

Coal Getting . . . 16% increase in output

Tin-Box Making . . . 40% „

Chocolate Packing . 35% „

5...Distribution of Periods of Work and Rest.

The introduction of rest-pauses has given excellent results. (Note—the precise conditions *must* be determined scientifically; otherwise the result is likely to be disappointing.)

Laundry Work . . . 4% increase in total output

Fancy Goods . . . 5% „

Sweet Packing . . . 5% „

Needlework . . . 8% increase in piece-rate earnings

Printing Works . . . 8% increase in speed of work

Tapestry Works . . . 10% increase in piece-rate earnings

6...*Reduction of Waste.*

The causes of spoilt work, breakages and other sheer waste of this kind are very often psychological. It is easy enough to blame the workers for "carelessness," but the psychologist often finds that so-called "carelessness" is directly due to worry, rush or overstrain. By attacking waste at its source, savings such as the following are possible :

Teashops . Breakages of China reduced by 53%
Restaurant . Breakages of China reduced by 44%
Biscuit Bakery . Consumption of Gas reduced by 16%
Rubber Boots . Spoilt work reduced by 52%
Biscuit Factory . Waste in one department reduced by 50%

7...*Arrangement of Materials and Design of Implements.*

Time study reveals unsuspected faults in the design of tools, work-benches, machine controls, and in the flow of materials. Careful re-planning leads to improvements in individual processes such as the following :

Gas Works . . . 47% saving of time
Medical Supplies . . . 37% increase in output
Cash-desk work . . . 33% increase in speed of work
Motor-Car Assembly . 31% increase in bonus earnings
Newspaper Production 30% increase in output
Telephone Manufacture . Saving of £1,500 per annum
Tapestry Works . . . 50% increase in output

8...*Layout of Plant.*

Waste of working time due to awkward

layout of plant or to faulty dovetailing of the processes is an important and universal source of high costs ; it also causes deterioration in the 'morale' of the worker. Great improvement can be effected by expert time and movement study :

Oil Refinery . Annual saving of £4,000 on a single outlay of £5,000
Motor Car Body Building . Institute's work largely instrumental in trebling the production of finished cars
Woollen Mill Saving of £700 on costs of new layout
Tapestry Works . Percentage of late deliveries reduced from 63 to 35

9...*Effects of Illumination, Ventilation, etc., on Efficiency.*

Brilliant lighting is not necessarily good lighting. It *pays* to study the physiological aspect. Similarly with ventilation and other environmental factors. Some of the results of changes introduced are given below :

Coal Getting 14% increase in output
Sweet Packing . . . 10% „
Cutting Shapes . . . 6% „
Motor-Car Assembly 4.5% reduction in defective work
Inspection Process 7% increase in speed of work

10...*Vocational Guidance.*

"Follow-up" of 100 children who had been psychologically tested and given advice on the choice of an occupation on leaving school showed that

Of those who had followed the advice given, more than 80 % were satisfied with their work, prospects and pay.

Of those who had not followed the advice given, less than 40 % were satisfied.